

Application No.: 10/635,864  
Response dated: November 24, 2008  
Reply to Office Action of July 25, 2008

### REMARKS

Reconsideration of the application is respectfully requested.

Claims 1-12, 14-16, 18, and 20 are pending. Claims 13, 17, and 19 were previously cancelled.

### Double Patenting

Claims 1-12, 14-16, 18, and 20 stand provisionally rejected over USSN 10/772,823.

Upon indication of allowable subject matter in the present case, an appropriate Terminal Disclaimer will be filed.

### Rejection Under 35 U.S.C. §102 and/or 35 U.S.C. §103

The Action maintains the rejection of Claims 1-12, 14-16, 18, and 20 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,124,418 to Welborn (Welborn.) Applicants respectfully disagree.

Applicants have previously clarified that in the instant bimodal polymer, the high molecular weight component has a molecular weight distribution between 4.5 and 6.88. The Action notes that Welborn discloses a molecular weight distribution range from 2.5 to 100. The broad range demonstrates that Welborn fails to disclose or suggest a polymer having the properties of an inventive polymer produced according to Applicants' presently claimed invention. In order to facilitate prosecution, Applicants provide the following test results to show the novel and non-obvious difference of polymers produced according to Applicants' presently claimed invention over the polymers produced according to Welborn.

A production batch of polymer was produced according to the Welborn disclosure (May 1997.) The Slow Crack test results were determined according to ISO 13479, which is directly related to ISO 13477. The result for the comparative polymer was 107 hours. A polymer

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produced according to the instant disclosure had a failure time of > 3,600 hours when tested under identical conditions. This result is documented in a test report from Jana laboratories, referencing Univation notebook 1163-18-1, February 2007.

ISO 13479 specifies a method to determine the resistance to slow crack growth of polyolefin pipes. The test consists of a hydrostatic pressure test on a pipe with machined longitudinal notches on the outside surface and the result is expressed in terms of time to failure. The test is applicable to pipes of a wall thickness greater than 5 mm.

The test procedure is described in 150 13479. Four notches are introduced on a minimum of three pipes. The notched pipes are then subjected to hydrostatic pressure testing in tap water. When the pipes have failed or have been terminated the remaining ligament thickness is checked.

The system standards and the test conditions and requirements are specific to each material. For PE-100 test conditions, all testing is performed using tap water at 80 C as test media. To obtain PE-100 status, the polymer must meet a variety of conditions. For example, to be considered PE-100 grade, the polymer must withstand a pressure of 8.0 bar, and a failure time of >500 h. The comparative polymer did not meet the PE-100 standards. However, the polymer produced according to Applicants' presently claimed invention did meet and/or exceed the PE-100 standards, and is currently being sold commercially as PE-100 or higher grade material.

As part of the PE-100 testing, ISO 13479 rapid crack propagation (RCP) pressure testing was conducted on the comparative polymer, which was determined to have an RCP pressure of 1.0 bar. In contrast, the instant polymer under identical conditions was determined to have a RCP pressure of >10 bar. This test is similar to ASTM-F1473 as recited in Claim 7. Again, the comparative polymer failed to obtain PE-100 classification in contrast to a polymer produced according to Applicants' presently claimed invention.

ISO 13479 is related to Applicants' recited ISO 13477 testing, the difference being that ISO 13477 specifies a small-scale test for determination of arrest or propagation of a crack

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initiated in a thermoplastic pipe at a specified temperature and internal pressure. The aim is to assess the performance of thermoplastics pipes that are intended for the supply of gases or liquids, in the latter case air may also be present in the pipe.

In ISO 13477 testing, a section of a thermoplastic test pipe of a specific length, maintained at a specified test temperature, containing a fluid at a specified test pressure, is subjected to an impact, near one end, in order to initiate a fast running longitudinal crack. The test temperature and test pressure are defined in the appropriate standards. The fluid is either identical to the one used in the intended application or an equivalent substitute. Rapid decompression ahead of the propagating crack is retarded by internal baffles and by an external cage which restricts flaring of the test pipe at the edges of the fracture. Hence this technique achieves steady-state rapid crack propagation (RCP) in a short pipe specimen at a lower pressure than in a full-scale test. The tested pipe is examined to determine whether arrest or propagation of the crack has occurred. From a series of tests at different pressures and at constant temperature, the critical pressure or the critical hoop stress for RCP can be determined. Similarly the critical temperature for RCP can be determined by testing at different temperatures at constant pressure or hoop stress.

Accordingly, a high ISO 13479 time (e.g., >3600 hr) is consistent with a low ISO 13477 temperature (e.g., <-5°C), as recited by Applicants. The values obtained in the comparative examples thus demonstrate that polymers produced according to Welborn do not inherently possess the properties obtained by Applicants' presently claimed invention. In any event, polymers produced according to Welborn fail to meet the standards associated with PE-100 grade material, which is in contrast to Applicants' presently claimed invention. Accordingly, the polymer produced according to the presently claimed invention is both novel and non-obvious over Welborn as demonstrated by the superiority of the instant polymers over polymers produced according to Welborn.

Applicants respectfully request that all rejections be withdrawn and solicit a prompt notice of allowability. In the alternative, Applicants invite the Office to telephone the

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undersigned attorney if there are any other issues outstanding which have not been presented to the Office's satisfaction.

Respectfully submitted,

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Date



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